

Remarks

Claims 1-60 remain pending in the application and currently stand rejected. Claims 1, 21 and 41 are amended herein. The Applicant respectfully traverses the rejections and requests allowance of claims 1-60.

Claim Amendments

Claim 1 is amended to further indicate that the channel information stored in the memory is transferred from the memory to a user system. Claims 21 and 41 are amended in a similar fashion. This amendment is supported in the present application at least at page 34, lines 23 and 24, which indicate that performance information may include channel information, and page 16, line 16, to page 17, line 2, which indicates that performance information can be accessed by a user system.

Claim Rejection Under 35 U.S.C. § 101

Claims 1-60 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. (Page 2 of the Office action.) More specifically, the Office action indicates that each of the claims does not produce a useful, tangible, and concrete result. (Pages 2 and 3 of the Office action.) Presumably, the rejection is being made because the channel information is stored in a memory, and no indication is made that the information is utilized beyond that point. In response, claims 1, 21 and 41 are amended herein to indicate that the channel information is transferred from the memory to a user system. Making the channel information available to a user system thus results in claimed subject matter that is useful, concrete and tangible by making the information available to a user.

More specifically regarding method claims 1-20, the Office action indicates that “[t]he method steps are made intangible since it is not clear or adequately disclosed what tangible medium or device carr[ies] out the recited steps.” (Page 3 of the Office action.) The Applicant respectfully disagrees. Method claims describe a process, which is statutory subject matter under 35 U.S.C. § 101, and claims for a process do not require a recitation of any kind of tangible medium or device for performing the claimed process.

Based on the foregoing comments and the current amendments to claims 1, 21 and 41,

the Applicant contends that claims 1-60 represent statutory subject matter, and respectfully requests withdrawal of the 35 U.S.C. § 101 rejection.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-9, 13-29, 33-49 and 53-60 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,377,562 to Schneider (hereinafter “Schneider”) in view of U.S. Patent No. 5,608,727 to Perreault et al. (hereinafter “Perreault”). (Page 3 of the Office action.) Also, claims 10-12, 30-32 and 50-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Schneider and Perreault in view of U.S. Patent No. 6,411,606 to Moura et al. (Page 6 of the Office action.) The Applicant respectfully traverses the rejections in view of the following discussion.

Claims 1, 21 and 41

Independent method claim 1 is reproduced below, with emphasis supplied:

1. A method of operating a probe device in a broadband wireless system, the method comprising:
 - receiving a message;
 - processing the message to determine *channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users*;
 - storing the channel information in a memory in the probe device; and
 - transferring the channel information from the memory to a user system.

Independent software product claim 21 and independent probe device claim 41 each incorporates similar provisions.

The Office action indicates that Schneider teaches each of the elements of claims 1, 21 and 41. (Pages 3 and 4 of the Office action.) For example, the Office action states that “processing the message to determine channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users” is shown in Schneider at column 5, lines 8-49 (“data recovery from signals received from the bandpass filter by processor 32 in accordance with the particular cellular communication utilized”). (Id.) In response, the Applicant respectfully asserts that Schneider does not teach or suggest these provisions of amended claims 1, 21 and 41.

Generally, Schneider discloses “a wireless, cellular radio link from a base station to a plurality of subscriber stations within a cell reception area.” (Column 3, lines 31-33.) The base station of Schneider, shown in the block diagram of Fig. 1, includes a channel probe 16 which “generates a test signal that can be added to each subscriber channel to enable the destination to determine the strength and character of the signal channel.” (Column 4, lines 51-54.) Further, a data portion of signals received by the base station “represents monitored channel quality of the link. Quality metrics may comprise two components: the signal character of the individual subcarriers, obtained from the channel probe, and the bit error rate performance obtained from the CRC error correction, both monitored at the subscriber premises and transported to the base station.” (Column 5, lines 17-23.) The metrics are subsequently “compared against the quality of service criteria for each subscriber.” (Column 5, lines 38 and 39.) In light of these metrics, transmission of data to the subscribers may then be controlled by the quality of service processor 36 of the base station to meet the requested service criteria. (Column 5, lines 39-49.)

Regarding quality of service, Schneider states that “[a] user, when initially subscribing, can set a quality of service level schedule that reflects *projected uses* for various times.... Quality of service subscription data, including schedules, are stored in the memory of quality of service processor 36. In use, the subscriber’s needs may change, on a temporary or permanent basis. Requests for change may be sent as wireless data signals upon receipt of which processor 36 can override its stored quality of service data for the subscriber.” (Column 8, lines 7-16.)

However, Schneider does not teach the subject matter of current claims 1, 21 and 41. For example, Schneider discusses signals sent from a subscriber station to the base station that indicate signal strength and bit error rates experienced at the subscriber station, as well as messages providing subscription data indicating *proposed* quality of service level schedules requested by users. However, the Applicant asserts that none of this, nor any other part of Schneider, teaches or suggests “channel information describing *actual use* of each of a plurality of channels in the broadband wireless system by each of a plurality of users,” as provided for in claims 1, 21 and 41. Some examples of actual use discussed in the present application include “a per-user breakdown of the time in each channel, bytes transmitted in each channel, and protocol types used in each channel.” (Page 34, lines 26-28.)

Alternative, the Office action appears to employ Perreault in the rejection, although to what end is not clear. The Office action states that “Perreault discloses a system for frequency

spectrum management for dynamic spectrum usage adjustment among applications on a shared medium wherein a spectrum manager allocates channels based at least in part on information for quality and *usage metrics for each of the channels allocated for the use of the application* (see Fig. 2, step 204, col. 2, lines 52-67, col. 4, lines 18-59). According to Perreault, the RF spectrum is allocated for multiple applications, e.g., data, voice, and video, in a broadband cable network (see col. 3, lines 1-10), which makes Perreault pertinent to the instant application.” (Page 4 of the Office action; emphasis supplied.) However, the Office action does not appear to allege specifically that Perreault actually teaches or suggests any of the limitations of claims 1, 21 and 41. (See page 4 of the Office action.)

Presuming that the Office action intended to allege that Perreault teaches the processing of messages to determine channel information describing actual use of each of a plurality of channels in the broadband wireless system by each of a plurality of users, the Applicant respectfully disagrees. While Perreault discloses maintaining usage metrics of each channel employed for a particular *application*, such as data, voice and video, Perreault does not appear to teach or suggest information describing actual use of each of a number of channels *by each of a plurality of users*, as provided for in claims 1, 21 and 41. In other words, Perreault does not appear to track usage of the channels *by each individual user*. Instead, Perreault is interested in channel usage by each individual *application*, such as voice, data, and video, so that channels may be reallocated from one application to another (instead of one particular user to another). As a result, not only does Perreault not teach or suggest tracking of actual usage of individual users on each channel, the main goal of channel allocation among applications does not appear to be served by doing so.

Thus, the Applicant contends that claims 1, 21 and 41 are allowable in view of the combination of Schneider and Perreault, and such indication is respectfully requested.

Claims 2-20, 22-40 and 42-60

Claims 2-20 depend from independent claim 1, claims 22-40 depend from independent claim 21, and claims 42-60 depend from independent claim 41, thus incorporating the provisions of their respective independent claims. Therefore, the Applicant asserts that claims 2-20, 22-40 and 42-60 are allowable for at least the reasons provided above with respect to claims 1, 21 and 41, and such indication is respectfully requested.

Further regarding claims 4, 24 and 44, which indicate that the message processed to determine channel information is a credit allowing usage of one of the channels, the Office action indicates that Schneider discloses this limitation by its monitoring of signal character of individual sub-carriers. (Page 5 of the Office action.) The Applicant respectfully disagrees, as neither subcarriers nor bit error rates teach or suggest the presence of credit messages. Schneider mentions the use of tokens to control access to a network. (See column 6, lines 22-58.) However, Schneider does not teach or suggest that tokens are processed to generate channel information as provided for in claims 4, 24 and 44. Thus, the Applicant contends that claims 4, 24 and 44 are allowable for at least this additional reason, and such indication is respectfully requested.

As to claims 7, 27 and 47, which indicate that the probe device is connected to an upstream manager, the Office action indicates that the channel probe of Schneider is shown coupled to an upstream manager in Fig. 1. (Page 5 of the Office action.) The Applicant respectfully disagrees. Instead, Fig. 1 indicates that the channel probe 16 is only coupled with the statistical time-division multiplexer (STDM) 14, which only resides in the downstream path from the base station to a subscriber station. (See Fig. 1; and column 4, lines 48-64.) The channel probe 16 is not coupled to any of the elements 30-36 of the upstream path from the subscriber stations to the base station. Thus, the Applicant contends that claims 7, 27 and 47 are allowable for at least this additional reason, and such indication is respectfully requested.

More specifically regarding claims 9, 16, 17, 29, 36, 37, 49, 56 and 57, each of which involves either determining a channel state, or channel information regarding a change in state of the channel, the Office action indicates that Schneider teaches these provisions by way of channel quality and/or bit error rate for each channel being fed back dynamically from the user. (Page 5 of the Office action, referring to column 3, lines 61-67 of the Schneider.) The Applicant respectfully disagrees, as neither channel quality nor bit error rate serve as a *state* of a channel, such as “polling,” “dedicated” or “idle,” as discussed in the present application. Thus, the Applicant asserts that claims 9, 16, 17, 29, 36, 37, 49, 56 and 57 are each allowable for this additional reason, and such indication is respectfully requested.

As to claims 13, 20, 33, 40, 53 and 60, each of which provide for either determining a time in a state or providing channel information comprising a time in a state of one of the channels, the Office action indicates that Schneider discloses these provisions at column 6, lines

36-44, which discuss the token controller having “several timers ... to determine how long a data source may send its data after ‘capturing’ the token.” (Page 6 of the Office action; and column 6, lines 41-44.) While such timers appear to be used to implement a statistical time division multiplexer, Schneider does not appear to indicate that these time intervals are stored as channel information. Further, Schneider does not indicate that its probe device 16 of Fig. 1 performs such a function. Thus, the Applicant contends that claims 13, 20, 33, 40, 53 and 60 are allowable for at least this additional reason, and such indication is respectfully requested.

Regarding claims 14, 15, 18, 19, 34, 35, 38, 39, 54, 55, 58 and 59, each of which provides for monitoring or storing as channel information a number of bytes or messages transmitted, the Office action alleges that these provisions are anticipated by Schneider by way of each user requiring a particular data throughput rate and quality of service, and by way of adjusting output data bit rates for each of its buffers. (Page 6 of the Office action.) The Applicant again respectfully disagrees, as Schneider does not indicate that monitoring numbers of bytes or messages transmitted is necessary for guaranteeing data throughput rates or quality of service. Further, if Schneider were to monitor such information, Schneider does not indicate that this information is stored as channel information in a memory and transferred from the memory to a user system, as provided for in claims 14, 15, 18, 19, 34, 35, 38, 39, 54, 55, 58 and 59. Thus, the Applicant contends that claims 14, 15, 18, 19, 34, 35, 38, 39, 54, 55, 58 and 59 are allowable for at least this additional reason, and such indication is respectfully requested.

Given the foregoing discussion, the Applicant respectfully requests that the 35 U.S.C. § 103 rejections of claims 1-60 be withdrawn.

Conclusion

Based on the above remarks, the Applicant submits that claims 1-60 are allowable. Additional reasons in support of patentability exist, but such reasons are omitted in the interests of clarity and brevity. The Applicant thus respectfully requests allowance of claims 1-60.

The Applicant believes no fees are due with respect to this filing. However, should the Office determine additional fees are necessary, the Office is hereby authorized to charge Deposit Account No. 21-0765 accordingly.

Respectfully submitted,

/kyle j way/

SIGNATURE OF PRACTITIONER

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